



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,548	03/15/2001	Steven H. Reichman	RL-1970	5475

7590 12/31/2003  
Allegheny Technologies Incorporated  
1000 Six PPG Place  
Pittsburgh, PA 15222

EXAMINER
----------

JOHNSON, STEPHEN

ART UNIT	PAPER NUMBER
----------	--------------

3641

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/809,548

Applicant(s)

REICHMAN, STEVEN H.

Examiner

Stephen M. Johnson

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-2 and 4-54 is/are pending in the application.
- 4a) Of the above claim(s) 12, 14 and 24-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-11, 15-23 and 45-54 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☒ Claim(s) 1, 2 and 4-54 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6, 8. 6) ☐ Other: \_\_\_\_\_

Art Unit: 3641

1. Applicant's election without traverse of the armor or article containing an energy absorbing layer 22 of nickel-titanium alloy; an energy absorbing layer 24 of nickel-titanium alloy; a second plate 30 of alpha-beta titanium alloy; and a third plate of alpha-beta titanium alloy in Paper No. 11 is acknowledged.

Claim 3 is cancelled. Claims 12, 14, and 24-44 are withdrawn from consideration as being directed to non-elected species. Claims 1-2, 4-11, 13, 15-23, and 45-54 read on the elected invention and an action on these claims follows.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4-6, 10, 15, 17, 45, 47-52, and 54 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsilevich.

Tsilevich discloses an armor comprising:

- |  |                     |
|--|---------------------|
| a) a metallic material that undergoes a reversible phase change;             | 22 or 37            |
| b) phase change at between $-50^{\circ}\text{C}$ and $200^{\circ}\text{C}$ ; | col. 3, line 1      |
| c) a metallic material that is Nitinol;                                      | col. 2, lines 52-53 |
| d) a second metallic plate; and  | 34 (upper (fig. 3)) |
| e) a third metallic plate.   | 34 (lower (fig. 3)) |

Art Unit: 3641

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 4-6, 9-10, 15, 17, 45, 47-52, and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Paine et al..

Paine et al. disclose an armor comprising:

- a) a metallic material that undergoes a reversible phase change; col. 5, lines 7-35
- b) a second energy absorbing layer that exhibits an elastic strain deformation of at least 5%; col. 3, lines 48-51
- c) phase change at between  $-50^{\circ}\text{C}$  and  $200^{\circ}\text{C}$ ; inherent
- c) a metallic material that is Nitinol; col. 2, lines 52-53
- d) a second plate; and see fig. 2
- e) a third plate. see fig. 2

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paine et al. in view of Turner et al.

Paine et al. apply as previously recited. However, undisclosed is an armor article

Art Unit: 3641

disposed on an armored vehicle. Turner et al. teach an armor article disposed on an armor vehicle, see entire disclosure. Applicant is selecting a particular use of the armor article of Paine et al. which is probably one of the most common uses of armor plates (see 89/36.08). It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Turner et al. to the Paine et al. armor arrangement and have an armor arrangement that is disposed on an armored vehicle.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paine et al. in view of Vecchio.

Paine et al. apply as previously recited. However, undisclosed is diffusion bonding to hold together adjacent layers. Vecchio teaches diffusion bonding to hold together adjacent layers, col. 19, lines 38-43. Applicant is selecting a known method for holding together adjacent armor layers and putting it to use as it is already commonly used in this art. It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Vecchio to the Paine et al. armor arrangement and have an armor arrangement wherein the adjacent layers are joined in a way commonly known in this art.

9. Claims 11 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsilevich in view of Dobbs.

Tsilevich applies as previously recited. However, undisclosed are metallic materials for the outer layers that are alpha-beta titanium alloys. Dobbs teaches metallic materials for the outer layers that are alpha-beta titanium alloys (see claims 3 and 4). Applicant is substituting one well known metallic armor element for another in an analogous art setting. It would have been obvious to a person of ordinary skill in this art at the time of the invention to

Art Unit: 3641

apply the teachings of Dobbs to the Tsilevich armor arrangement and have an armor arrangement with a different type of metallic material for the outer layers.

10. Claims 7-8 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsilevich in view of Jackson et al. or Buehler et al..

Tsilevich applies as previously recited. However, undisclosed is a Nitinol shape memory alloy that is 55-Nitinol. Jackson et al. and Buehler et al. each teach the use of a Nitinol shape memory alloy (see entire disclosures). Applicant is substituting one Nitinol shape memory alloy for another. It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Jackson et al. or Buehler et al. to the Tsilevich armor and have an armor that uses a different type of Nitinol shape memory alloy.

11. Claims 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsilevich in view of either Jackson et al. or Buehler et al. as applied to claims 1-2, 4-8 10, 15, 17, 45, 47-54 above, and further in view of Dobbs.

Tsilevich, Jackson et al., and Buehler et al. apply as previously recited. However, undisclosed are metallic materials for the outer layers that are alpha-beta titanium alloys. Dobbs teaches metallic materials for the outer layers that are alpha-beta titanium alloys (see claims 3 and 4). Applicant is substituting one well known metallic armor element for another in an analogous art setting. It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Dobbs to the Tsilevich in view of either Jackson et al. or Buehler et al. armor arrangement and have an armor arrangement with a different type of metallic material for the outer layers.

Art Unit: 3641

12. Claims 7-8 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paine et al. in view of Jackson et al. or Buehler et al..

Paine et al. apply as previously recited. However, undisclosed is a Nitinol shape memory alloy that is 55-Nitinol. Jackson et al. and Buehler et al. each teach the use of a Nitinol shape memory alloy (see entire disclosures). Applicant is substituting one Nitinol shape memory alloy for another. It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Jackson et al. or Buehler et al. to the Paine et al. armor and have an armor that uses a different type of Nitinol shape memory alloy.

13. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jardine, Yasuda, Albrecht et al., Aisaka et al., and Japan 63-115795 disclose other state of the art composite arrangements.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Johnson whose telephone number is 703-306-4158. The examiner can normally be reached on Tuesday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-4177.

Art Unit: 3641

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9326. The fax phone number for after final communications is (703) 872-9327.



STEPHEN M. JOHNSON  
PRIMARY EXAMINER

Stephen M. Johnson  
Primary Examiner  
Art Unit 3641

SMJ